

Atty. Docket No. PIA30962/DBE/US  
Serial No: 10/712,945

Amendments to the Claims

Please amend claims 12 - 16 and 19 and cancel claim 21 as follows:

1-11. (Cancelled)

12. (Currently amended) A metal line structure formed in a semiconductor device, comprising:

first metal lines formed on a substrate, the first metal lines having a first barrier metal layer and a first conductive layer;

a first interlayer insulator between adjacent ones of the first metal lines;

second metal lines formed on respective ones of the first metal lines, the second metal lines having a second barrier metal layer and a second conductive layer; and

a second interlayer insulator between adjacent ones of the second metal lines;

wherein the first conductive layer is formed of a material different from a material ~~that~~ of the second conductive layer, and the ~~second-first~~ metal lines ~~serve to~~ prevent ions of the ~~first second~~ metal lines from being diffused into the substrate.

13. (Currently amended) A metal line structure as defined in claim 12, wherein each of the first metal lines ~~[[has]]~~ have a thickness substantially identical to a thickness ~~that~~ of the second metal lines.

14. (Currently amended) A metal line structure as defined in claim 12, wherein the first conductive layer is formed of an Al alloy containing not greater than 5% Cu.

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15. (Currently amended) A metal line structure as defined in claim 12, wherein the first interlayer insulator has a thickness substantially identical to ~~a thickness~~ that of the second interlayer insulator.

16. (Currently amended) A metal line structure as defined in claim 12, wherein the second conductive layer ~~is substantially formed~~ consists essentially of Cu.

17. (Previously amended) A metal line structure as defined in claim 12, wherein the first interlayer insulator is made of undoped silicate glass (USG) or fluorinated silicate glass (FSG) deposited by an high density plasma (HDP) process.

18. (Previously amended) A metal line structure as defined in claim 12, wherein the second interlayer insulator is made of undoped silicate glass (USG) or fluorinated silicate glass (FSG) deposited by a plasma enhanced chemical vapor deposition (PECVD) process.

19. (Currently amended) A metal line structure as defined in claim 12, wherein the second interlayer insulator is made of undoped silicate glass (USG), fluorinated silicate glass (FSG); or SiOC deposited by a plasma enhanced chemical vapor deposition (PECVD) process.

20. (Original) A metal line structure as defined in claim 12, wherein the first and the second barrier metal layers comprise at least one of Ti, TiN, Ta, TaN, W and WN.

21. (Cancelled)